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THE ROLE OF VENTURE CAPITAL IN HIGH TECHNOLOGY FINANCE

Jan Elise Crispin and John Brereton[1]

Misconception, myth, and misinformation seem to surround the subject of venture capital. Although volumes have been written on the subjects of both venture capital and the overseers of such funds (venture capitalists), to the average person (and most entrepreneurs) venture capital is still an enigma. This objective of this study is to identify some of the more salient features of the venture capital industry, and on a broader level, to identify and discuss some misconceptions surrounding the venturing process.

Venture capital represents something different to almost everyone involved with high tech industries. The engineer-turned-entrepreneur sees it as both a blessing and a bane. On one hand, venture capital is the all-important risk capital needed to begin or sustain a fledgling company. However, in acquiring this investment -- if it is possible-- the entrepreneur gives up something in return, usually at least some equity in the company and often managerial control.

The average person has a different view. Articles and stories have glamorized the world of venture capital. It is perceived as a wheeling-dealing arena where leveraged buyouts (LBOs) and initial public offerings (IPOs) yield extraordinary profits. Among their peers, the venture capitalist is viewed as a special breed of investor who centers his attention (and funds) on early stage companies -- usually technology-driven firms -- whose startup or continued expansion is restricted by a lack of financial capability.

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[1]Jan Crispin is a research analyst at the Bureau of Economic and Business Research; John Brereton is president of The Brereton Group and collaborated on this project in a consulting capacity.

This article is the first in a two-part series on venture capital. It is also the first in a series of articles resulting from a study of Utah's high technology industry. Future articles will cover case studies of Utah firms and other issues such as marketing and management in technology oriented firms, and identifying the major growth sectors in the high technology industry in both the United States and abroad. Financial support for this research came from the Centers of Excellence, Utah Technology Finance Corporation, and the University of Utah. Their support is gratefully acknowledged. R. Thayne Robson, Director of BEBR and Jan Elise Crispin are reponsible for the direction of this project.

Opinions are also divided as to the importance and availability of venture capital. Entrepreneurs with a history of starting successful high tech firms claim there is a glut of venture capital in the market. Less experienced entrepreneurs, on the other hand, claim there is a shortage of such financing and point to the number of young high tech failures as proof. Some entrepreneurs avoid venture capital like a plague, while others go to extreme measures to attract this risk capital.

From this, it is clear that no single interpretation or description of venture capital or its role in the equity capital market is likely to satisfy everyone. Still, there are some characteristics of venture capital which are widely accepted.

What Is Venture Capital?

Technically described as "the early-stage financing of new and young companies seeking to grow rapidly," venture capital fuels the process of innovation, generates the creation of new products and benefits economic activity disproportionately to the relatively small amounts of capital invested. Stanley Pratt, acknowledged venture capital guru, further defines venture capital by identifying three key characteristics in the use of venture capital funds:[2]

1. The actual or potential equity participation of the venture capitalist either through a direct stock purchase, or through warrants, options, or convertible securities;

2. A long term investment discipline that requires the venture capitalist to wait usually five to ten years for investments to provide a significant return;

3. Active involvement in the management of the venture company by the venture investor.

Several other characteristics can be added to this short list. Specifically,

4. Venture capital is invested with the goal of earning extraordinary returns. This compensates the investor for the extraordinary risks that are borne in the funding of a new or young company;

5. As a rule, venture capitalists invest in young companies that are poised to experience robust growth through an innovation.

This list could be lengthened to reflect the different types of venture funds, investment objectives, and degree of management involvement. There is no "typical" venture capitalist, just as there is no "typical" entrepreneur.

Overview of the Venture Industry

Last year the venture capital industry numbered 800 firms, an increase of 237 percent from just 11 years ago. Although the total capital under management at these firms has not been finalized for 1987, preliminary figures indicate that the size of the capital pool could be as high as $28 billion, an increase of more than 16 percent from the funds under management in 1986. In fact, the venture capital funds have been steadily increasing since 1978 at an annual rate of 27 percent (Table 1).

Table 1
Venture Capital Trends and Forecasts
(billions of dollars)

Year	Size of Total Capital Pool	Annual Percent Change
1979	3.8	5.50
1980	4.5	18.42
1981	5.8	28.88
1982	7.6	31.03
1983	12.1	59.21
1984	16.3	34.79
1985	19.6	20.25
1986	24.1	22.96
1987	28.0	16.18

Sources: *Venture Capital and Innovation*, Joint Economic Committee (U.S. Government Printing Office, Washington, D.C., 1985) p. 6; *Pratt's Guide to Venture Capital Sources*, 12th ed, p. 9.

Since 1978, the independent private venture capital firms have emerged as the dominant segment of the venture industry. The "independents" include

[2]Pratt, Stanley E. "Overview and Introduction to the Venture Capital Industry." Pratt's Guide to Venture Capital Sources (edited by Jane K. Morris) 12th ed. (1988); Massachusetts: Venture Economics, Inc. pp. 7-16.

Table 2
Sources of Capital Commitments
Institutionally-Funded Independent Private Firms Only
(millions of dollars)

	1982	1983	1984	1985	1986	1987
Total	$1,432	$3,408	$3,185	$2,327	$3,332	$3,000
Pension Funds	474	1,070	1,085	767	1,672	1,400
Foreign Sources	188	531	573	548	361	300
Corporations	175	415	463	274	350	350
Individuals and Families	290	715	467	303	392	350
Insurance Companies	200	410	419	254	348	400
Endowments and Foundations	96	267	178	181	209	200

Source: *Venture Capital Yearbook 1987*, Venture Economics, Inc.; data for 1987 are estimates by the U.S. Department of Commerce, International Trade Administration, *U.S. Industrial Outlook 1988*, January 1988, p. 54-3.

institutional private firms, families, and individuals. This group received 85 percent of the $4.5 billion of new capital in 1986 and controlled 75 percent of the entire venture capital pool. These funds range in capital size from $20 million to $75 million. Investment activity is normally at a rate of 10 to 15 new commitments per year with each new commitment receiving from $250,000 to over $1 million. Corporate industrial groups ranked second with 16 percent, and Small Business Investment Companies (SBICs) were a distant third, accounting for 9 percent of the capital under management.[3]

From Where Does the Money Come?

Pension funds continue to be the most significant source of capital commitments for venture capital. During the period 1984 to 1986 when almost every other source reduced its commitment, pension money commitments increased at a 24 percent rate. In 1986, pension funds invested close to $1.7 billion in venture capital. Although projections provided by the International Trade Administration show the 1987 figure to be slightly less ($1.4 billion), pension funds still accounted for a majority share of new capital commitments. In order of importance, major investors in venture funds in 1987 were: pension funds (47%), insurance companies (13%), individuals and families (12%), and corporations (17%). Table 2 shows the source of capital commitments for institutionally-funded independent private firms.

Where Does the Money Go?

The venture capital industry has grown at a phenomenal pace in the past decade. Certainly, the accelerating rate of technology development coupled with the rise of entrepreneurial spirit, have been the main catalysts in this surge of venture investing. Companies specializing in computer hardware/systems and software/services, received 29 percent of venture investments in 1986. This is down from just two years ago when firms specializing in these areas received 38 percent of the total invested. However, electronics-related companies (including those mentioned above) still receive well over half of all venture capital invested each year. One explanation for this high concentration is that computer-related industries have, in the past, provided the greatest opportunities for extraordinary returns that are generally the bottom-line issue of the venture capi-

[3]Pratt, Stanley E. p. 89.

talist. Medical and health care-related activities are another group that continue to attract significant sums of venture capital. Traditionally, venture capital has been used to fund entrepreneurs in high tech ventures. Although this is still the case for the bulk of investments, venture funds are increasingly considering non-high tech activities as well. A summarization of the investment patterns of venture capital funds is shown in Table 3.

Table 3
Disbursements of Venture Capital by Industry
(percent of dollar amount invested)

Sector	1983	1984	1985	1986
Computer Hardware and Systems	24	23	22	19
Software and Services	13	15	9	10
Telephone and Data Communications	9	11	14	11
Other Electronics	10	12	12	13
Total Electronics Related	56	61	57	53
Medical/Health Care Related	10	11	9	12
Commercial Communications	3	3	7	5
Energy Related	4	2	1	2
Genetic Engineering	3	3	4	4
Industrial Automation	4	4	4	2
Industrial Products and Machinery	4	4	3	2
Consumer Related	8	6	7	9
Other Products and Services	8	6	8	11
Total	100	100	100	100

Sources: *Pratt's Guide to Venture Capital Sources*, 10th ed. (1986) p. 38 and 12th ed. (1988) p. 39.

Although it is difficult to determine where venture investors will place their money in the future, a survey conducted by *High Technology Business* of 200 investment firms showed that the hottest industries in the 1988 area are expected to be medical equipment, biotechnology, and communications.[4]

The recent turn of events in the financial market (namely the stock market crash of October 1987) has limited the exit opportunities, via the public market, for many venture investors. On the flip side, by reducing the valuation of private companies, the stock market decline has created numerous attractive opportunities for venture investors. The long-term effects of the stock market crash have yet to be seen.

Geographical Concentration of Venture Funds

Venture capital funds tend to be specialized geographically as well as by industry. Professionally managed venture capital has historically been concentrated in the Northeast and San Francisco Bay Area. The major centers are in New York, San Francisco (including Silicon Valley), Boston and Connecticut. Secondary centers include Chicago and Minneapolis. The spatial patterns of venture investments are detailed in Table 4.

Although New York, Massachusetts and California still receive substantial amounts of venture capital, other areas around the country are beginning to see significant infusions as well. Venture firms outside these primary areas raised $852 million in 1986. While venture firms still prefer investing "close to home", when considering an investment in a distant area, venture capitalists will try to involve another group located within 200 miles of the business opportunity.

Trends in the Venture Capital Industry

There are several trends in the venture industry which warrant comment in this overview. Over the past two years, many large venture firms have

[4]Paul, Frederick. "Where Venture Capital Is Investing Now," High Technology Business, (March 1988), p. 19.

Table 4
Distribution of Capital Commitments
(independent private firms only)

Annual New Capital Commitments *(millions)*			Regional Breakdown *(millions)*		
	1986	1985		1986	1985
New York	$ 1,368.5	$ 511.8	Northeast	$ 2,346.4	$ 1,196.2
Massachusetts	688.7	400.8			
California			West Coast	654.0	785.1
Southern	52.5	94.7			
Northern	464.1	663.6	Mid Atlantic	204.2	101.6
Connecticut	237.0	201.8	Midwest/Plains	89.3	152.4
Maryland	157.2	12.9			
Washington	103.3	26.8	Southwest/		
Minnesota	52.0	0	Rockies	82.9	82.8
Other States	302.2	462.9	Southeast	48.7	57.2

Source: *Pratt's Guide to Venture Capital Sources*, 12th ed. (1988) p. 91.

switched their investments to focus on leverage buyout opportunities (LBOs), later stage financing, and follow-on investments. Later stage investment reached $877.8 million in 1986, up from $540.6 million in 1985 -- an increase of 63 percent. Growth in LBO activity was even more substantial. Total investment in LBOs jumped from $481.5 million in 1985 to $924.0 million in 1986, a 92 percent increase. Some individual funds showed an even higher tendency to participate in LBO activity.[5]

The emergence of this trend illustrates several important characteristics of the venture industry. By its nature, the venture capital industry is cyclical and opportunity-driven. During the past several years, the equity market created an extraordinary opportunity for LBOs as they offered both a lower risk and a shorter payback period than traditional venture capital investments. The venture industry was the first to respond by switching their funds to participate in these types of investments. In addition, economic conditions and the equity market created an unusual opportunity in initial public offerings (IPOs). This opportunity encouraged venture funds to switch from early stage investments, to later stage investments so as to accelerate the company's development, thereby positioning the company for an offering. The recent upheaval in the stock market changed all that. Presently IPOs have lost their lucrative lure. Until the market shows signs of stabilizing, IPO activity will likely remain depressed.

Venture capital is becoming increasingly concentrated. The large funds are getting larger and the small seed funds are finding it more difficult to raise money. Raising funds is also extremely difficult for firms without strong track records. At the start of 1987, 55 percent of the total venture capital pool was managed by 64 firms, each with $100 million under management. About 80 percent of the money raised by private funds in 1986 went to firms that already manage at least one fund. More importantly, the institutional investor is emerging as a dominant player in the venture capital industry. To these investors, managerial talent and experience are the key considerations in determining who they select as a fund manager.

Larger funds managed by larger firms mean fewer financings at the seed/idea stage. According to industry analysts, many venture firms have lost interest in funding these kinds of companies. Investments in young, fledgling firms require more time and effort than investment in larger firms, hence the LBO trend. The average size of early and

[5]U.S. Department of Commerce, International Trade Administration. U.S. Industrial Outlook 1988, "Venture Capital", 54-1(5).

late financing has increased over the past three years. Big firms are engaging in fewer deals at larger funding levels. This trend is expected to not only continue but to increase. Companies receiving venture capital infusions will be forced to pay more for the money -- marginal deals may not find money under any circumstances.

Investment Criteria

All venture capital firms have specific investment criteria which serve as a guideline in the selection process. However, most firms are willing to bend the rules to pursue an opportunity. Such a liberal exception policy makes it very difficult to generalize investment criteria. Nevertheless, there are three guidelines which seem to be industry standards. These guidelines center on the earnings potential of the prospective company; the potential value of the market; and lastly, the management capabilities of the potential recipient firm.

Earnings Potential

Because a public offering is such an important vehicle to a venture fund as a way of exiting an investment, a company's potential future earnings are a deciding factor in the selection process. For the sake of illustration, assume a venture capitalist requires a 35 percent rate of return and is willing to invest $1 million for seven years. For this, the investor wants 50 percent ownership of the company. After seven years the venture capitalist prefers to take the company public. At the time of the IPO, the company must be worth approximately $16.3 million. To qualify for venture capital consideration under this scenario, the company must currently have a price/earnings multiple of 15, have earnings of approximately $1.1 million annually, and have sales (assuming a 10% margin) of $10.8 million.

It is a dollar-and-cents decision. A company must have the potential to generate big earnings in order to qualify as a venture investment. The key word here is potential. One way to evaluate a company's potential is to look at its market, and this, then, is the second investment hurdle.

Market Potential

The safest way for a venture capitalist to realize a 35 or 40 percent return on his investment is to invest in a company that offers a product or service with a technological edge in a rapidly growing market. The market served by any particular firm is as important as the firm's innovation. Venture capitalists like companies that are in big, growing markets. Big markets create an opportunity for big earnings. Market potential also reduces the risk of the investment. A rapidly growing market buys a company time to work out its problems and to develop its product. The market criteria developed by Utah Ventures, for example, typifies what a venture capitalist wants. This investor looks for a company that serves a market that has the potential of $100 million or more in commercial industry sales. Furthermore, the company's annual sales potential should be $20 million and should be achievable in five years. These standards are common in the venture capital industry.

Management

The third important consideration is the quality and skill of the company's management team. Although management is listed third in this study, in reality, it probably ranks first in the majority of venture capitalist decisions. No matter how sophisticated the technology or how large the market, without a strong management team, the success of the company is questionable at best. At the very least, the return to the venture investor could be adversely affected. For example, 30 percent of all young venture companies fail in the first two years; another 30 percent fail after two years. Only 10 percent or so are considered to be successful investments. While the success of a young high tech company is not solely determined by the business acumen of the management team, it is quite possibly the most significant component in the company's failure.

Investment Stages

A venture capital investment is frequently categorized according to the portfolio company's

Table 5
Stages of Venture Capital Financing

Early Stage Financing	
Seed Financing	Small amount of money involved ($50,000). The entrepreneur uses this capital to develop his concept. This is the earliest stage of financing.
R&D Financing	A tax advantaged partnership set up to finance product development. Investors secure tax writeoffs for their investments. If product becomes successful, they share in profits.
Startup	Money is used for product development and initial marketing. While startup companies are organized, they have not sold products commercially.
First Stage	Entrepreneur generally has developed a prototype. Venture investment is used to initiate full scale manufacturing and sales.
Expansion Stage Financing	
Second Stage	*Working capital for the initial expansion of a company that is shipping product,* but may not yet be showing a profit.
Third Stage	Also called "Mezzanine" financing. Capital at this stage is used for major expansion including physical plant expansion, marketing, and working capital.
Fourth Stage	Also referred to as "Bridge" financing. This is financing for a company expecting to go public within six months to a year. Often bridge financing is structured so that it can be repaid from the proceeds of a public underwriting.
Acquisition/Buyout Financing	
Acquistion Financing	Funds provided to a firm to finance its acquisition of another company.
Management/ LBO	Funds provided to enable an operating management group to acquire a product line from either a public or private company concern.
Public Market	The purchase of over-the-counter stock. The venture investor is involved with improving the company.

Source: *Pratt's Guide to Venture Capital Sources* (edited by Jane K. Morris) 12th ed. (1988) p. 137. *Outline for a New High Technology Business Plan*, Arthur Young and Company, 1983.

stage of development. These categories provide a means of evaluating the risks associated with a specific investment, and to apply investment criteria. Different stages have different investment criteria and different expectations as to the rate of return. A brief description of these stages is shown in Table 5.

It is unusual for a company to fall neatly into any one of these categories. Most often, a company is somewhere in between one of the stages. However, the development stages are descriptive and allow an investor to evaluate the company.

Seed/Idea Financing

Contrary to public perception, seed or idea companies are not likely candidates for venture funds. Only 11.9 percent of private venture capital funds are invested in pre-startup (idea) or seed companies, and only 5.1 percent of SBIC funds are invested in such companies. This lack of involvement reflects the unusually high risk associated with unproven companies. At the idea stage the technological feasibility of an innovation is questionable at best, and the market feasibility is virtually nonexistent. It may take years before the product or the company is ready for commercialization.

At the idea stage, the entrepreneur usually relies on his savings or borrows from family members or friends to start the company. This is referred to as bootstrap financing. Several prominent firms in Utah began with bootstrap financing; for example, WordPerfect Corporation, Deseret Pharmaceutical, and Sorensen Research. One study reported that of the high tech firms surveyed, 62 percent relied on the personal savings of the founder for the initial injection of capital to start the company. Many times a company is started while the founder remains employed at a large corporation. These approaches are basically incremental and as such, offer some advantages to the founder. The most obvious advantage is that incremental startup reduces the financial risk of setting up a company, especially when compared to loan-based launches. The major disadvantage is that bootstrap or part time involvement does not allow vigorous research and usually does not yield the large profits associated with rapid jumps in innovation or technological changes.

"Angels"

Another source of risk capital to the seed company comes from investors who have been appropriately named "angels". These investors, or angels, represent the largest pool of risk capital for seed companies and other early stage companies. Yet, despite their importance to entrepreneurs, these investors are elusive. One study sponsored by the Office of Advocacy in 1980, researched the role of the individual investor in the financing of high tech firms in the New England region. The results of this study are very revealing. The overwhelming majority (78%) of these investors preferred to invest in high tech seed companies. Most of the investors had a working knowledge of the technology. These investors required lower rates of return than the professional venture investor, and according to the report, were motivated by other concerns such as increasing employment in the community.

Research indicates that most angels invest close to home, relying on an informal network of friends and associates for investment opportunities. In cases where angels have invested, there were similarities between them and the individuals requesting money. Just like the "pros," the individual investor considered management the most important factor in his or her investment decision; however, the "chemistry" between the two was almost as important as the manager's skill. The importance of these factors was followed by the innovation itself and then the market potential of the product or service.

Given the informal nature of seed company financing, it is very difficult to identify or to quantify the number of dollars individual investors have invested in these companies. However, it is obvious that these people play an important role in the venturing process -- they were willing to provide risk capital at a firm's most crucial moment, when no one else would.

Other Sources

Seed companies also rely on programs like the Small Business Inovation Research program (SBIR), state-funded programs, and incubator facilities. It is important to remember that at this stage, a seed company may not be formally organized, may not

have either a business plan, nor key management (other than the founder). Without these essential elements, it is extremely difficult for a venture capital firm to evaluate a seed company. This is why a seed company is not a likely candidate for venture capital and why seed programs and incubator centers are so important to these fledgling firms.

Early Stage

Once a company has cleared the initial R&D stage, adopted a formal business plan, selected key management and can demonstrate the ability or potential to generate extraordinary returns, venture capital becomes a likely source of funds. As reported in the JEC study, "Venture Capital and Innovation," 59 percent of venture capital financing by independent firms occurs in a company's startup (first stage) and early expansion stage (second stage). For most venture capitalists, investment in a company at the early expansion stage is considered to be the first of several follow-on investments. The venture capitalist knows that a growing company will need additional capital for operations, manufacturing, marketing, and new development. The amount of initial funding varies depending on the company's stage of development. The average size of an investment for startup companies is close to $2 million; of course, this amount can be phased into the company on an "as needed" basis.

When a venture capitalist makes an investment, he becomes part owner in the company. Ownership can take a number of forms; but commonly, it is in the form of a direct stock purchase (preferred or common), warrants, and/or convertible subordinated debenture securities. Regardless of the size or type of equity position, the main objective of the investor is to purchase equity (at a reasonable rate) in a rapidly growing corporation so that the shares may be sold at a later date for a profit. Unlike other types of investments, the deal is negotiated between the company and the investor. Most executives of small firms are aware of the venture investors' objectives. Several founders/owners interviewed for this study said they preferred to develop at a slower pace, relying on internal funds rather than accept a venture partner. Their reluctance underscores a very important point: venture capital is not suitable for every high tech firm; just as every high tech firm is not a candidate for venture capital.

The Issue of Control

Ownership or equity participation means involvement. Venture capitalists know through their experience that the degree to which a company is well managed is a good indicator of its potential value. The venture capitalist's involvement is intended to add value to the company. As such, he is usually involved with strategic issues like finance or marketing. The objective is not to manage the firm's day-to-day operations, but rather provide guidance on issues that may be out of the experience level of the founder.

For some entrepreneurs this involvement, no matter how small, is another bitter pill to swallow. They fear that as the company grows and follow-on investments are needed, they will be squeezed out of the picture. Granted, this is a possibility, but only if the entrepreneur and his management team prove to be weak managers. Management changes may occur as the result of unmet performance targets that were agreed to at the time the initial investment was made.

Ownership and management involvement by venture capitalists are two disincentives for many entrepreneurs who might otherwise rely on venture capital. Several founders interviewed expressed this opinion. "I'm not going to give up something that has taken so long to build," was the response of one president when asked about the possibility of using venture capital. His sentiments are not uncommon. In some cases, it is simply a lack of understanding; in others, it is a reluctance to give up the potential or the control.

Many entrepreneurs turn to alternative capital sources in order to retain control and equity in the company. Examples of these sources include accountants, investment bankers, and financial planners. These investments are usually structured as private placements arranged by a financial intermediary. Private placements have been very important to local Utah companies like Hart Scientific, Inc., Unibase, and ALPS, Inc. According to Investment Dealers Digest Information Services, private placements have more than doubled over the last five years. It is difficult to identify an exact number because private placements are largely unregulated. Typically, private placements raise money for

promising small companies, primarily startups, and for those firms with a limited operating history. The general partner will raise between $500,000 and several million dollars by selling units of up to $25,000 to as many as 80 investors or client-accredited investors or corporations.

Expansion Stage

A company maturing to the IPO stage will require additional investments. This round of financing may be four to five times the amount of the initial capital investment. These additional fundings are referred to as follow-on investments or later stage financing.

Later stage financing has accounted for about 40 percent of the dollars invested by venture capital funds. In the coming years, however, the amount of dollars for later stage financing will increase dramatically as the startup companies financed in the early 1980s begin to mature. These mature firms, with their increased appetite for capital, will envelop much larger quantities of money than was committed at the founding stage. This need for later stage financing will be particularly acute in a high tech center like Utah. Many high tech firms have been started in Utah in the past three years and most of these new firms were idea companies. As idea companies, their initial capital needs were relatively small. Now, many of these companies are nearing the point of operations and expansion, and need more dollars to continue their development.

Second and Third Stages

It is convenient to break down later stage financing into several broad categories. Second stage companies, for example, are expanding. They are shipping product, but require infusions of capital to sustain operations. In all likelihood, these companies are not profitable. At the third stage, the company has turned the corner and is profitable. Capital requirements at this point center on expansion. The company may lack sufficient profits to sustain rapid growth. It is hoped that additional financing or follow-on investments by the venture capitalist will accelerate the company's development, and eventually its profitability. At the last or fourth stage, a company is ready for a public offering, merger or acquisition. Venture capital may be needed at this point because the environment does not favor a sale.

Since later stage or follow-on financing is tied to a company's performance, it is difficult to estimate the average funding level. Because each company's needs are different, any additional funding will vary. However, one authority estimates that the average size of financing for a company at the expansion phase is near $3.6 million, excluding fourth stage, or bridge financing.

The number of later stage financings has jumped in recent years. Between 1985 and 1986 later stage financings increased 63 percent. One reason for this increase is the risk factor involved in financing a more mature firm versus an earlier stage company. Venture capitalists can commit more dollars and less management involvement. Another reason for this growth has been the IPO market. Companies in the expansion stage are much closer to a public offering than is a start-up company. When the IPO market is hot, venture capitalists want to push as many deals as they can into this market. Later stage investment is one way to do this.

Exit Stage

The most important stage to a venture capitalist is the disinvestment stage or the "exit". It is only at this stage that the venture capitalist realizes his return. Most venture investors rely on capital appreciation rather than current income to generate their return. And recently, the best way to leverage that capital appreciation has been the IPO market. In 1987, there were 125 venture-backed IPOs, totaling $3.3 billion. This dollar volume represented a 55 percent increase over the 1986 total of $2.1 billion, and is 12 times greater than the 1978 totals of 10 IPOs priced at $91 million. It is clear from these comparisons that the equity market created a tremendous opportunity for IPOs, and that this opportunity radically changed the complexion of the venture capital industry. Undoubtedly, "Black Monday" (October 19, 1987) did deflate the IPO market; and while it may be somewhat premature, it seems reasonable to assume that this will have an

impact on the venture industry. Perhaps more venture funds will return to early stage investments. This shift would change virtually every aspect of the industry. For now, however, it seems clear that barring an economic downturn, venture capital will continue to grow at a vigorous pace.

Summary

By any measure, the venture capital industry has been very successful. Last year over $3 billion was invested by venture investors -- $28 billion has been invested in hundreds of companies over the past decade. These investments have created jobs and income. They have also helped to improve our nation's productivity and its competitiveness by acting as a catalyst for a renewed spirit of entrepreneurialism.

Venture, or risk capital, has played a unique role in the capital markets as well. In the past decade the venture capital industry has undergone many changes. Growth is the most obvious change. The venture capital market grows larger every year. The entry of institutional investors such as pension funds and insurance companies has fueled this phenomenal growth, while forcing other changes in the industry at the same time. For example, the venture industry is gradually losing its cyclical character. Dollars are being invested every year, not just during periods of economic expansion. The venture market is also in the process of consolidation. Large firms are getting bigger, and small or new firms are having a more difficult time competing. The race to attract institutional dollars has forced venture capital firms to use a systematic investment process. Intuition may still play a part in the investment process, but much less than ten years ago.

Although the venture capital industry is dynamic, one characteristic venture has remained impervious to change. That is, venture capital has been, and continues to be, opportunity driven. It seeks investments that provide superior returns whether the opportunity comes in the form of a cookie store or superconductor research. Also, while venture capital grew up with high tech, its loyalty is to the bottom line. This accounts for the recent drop in interest in computer hardware companies and an increased interest in communications and biotechnology. Some see these changes as simply investment fads. This is not the case. Venture capital is following its own first commandment: seek opportunity.

This intense drive and the need to provide superior returns to compensate investors for unusual risks means that not every promising firm is a candidate for venture capital. The selection process is tough. Only a few companies out of a hundred are ultimately funded by venture capital. In order of importance, the venture capitalist evaluates a company's management team, its innovation or product, and the market potential for that product.

Venture capital is a people-oriented investment. In fact, unlike other capital markets where the buyer and seller rarely know each other, a venture investment is a partnership between the entrepreneur and the investor. Company management must be competent, experienced and committed. In the final analysis, it is the management that decides the success of the company. A venture investment is a partnership. The investor not only brings needed risk capital to the partnership, but also the intention of being involved in the firm management. This does not mean involvement in the daily activities of the firm; rather, the venture capitalist provides expertise on strategic issues such as financing and marketing. Sometimes even this level of involvement is a bitter pill to swallow for the entrepreneur, which explains why some firms would rather go it alone.

Two additional important factors in the venture capitalist's financing decision is the product and its market. The company must have an idea or product which distinguishes it from the herd. But, the venture investor is generally not looking for novelty. He is searching for a product with a competitive edge that will translate into extraordinary profits when it is introduced to the market. Monopolizing tiny niche markets is another area that is not attractive to the venture capitalist. The company's product or idea must have sizable market potential. Big markets with big potential are preferred rather than small markets with limited potential.

These three hurdles -- management, innovation, market potential -- best explain why so many firms are not candidates for venture capital. Even if these three hurdles are met, a firm may still not be eligible. Most venture companies are not seed companies. The potential firm must have a track record, a management team, and a business plan. A company must fit the venture investor's portfolio, in terms of age, size, product and location. A prospective venture company's structure and ownership must allow easy exit by the investor.

Given these requirements, it is not surprising that relatively few firms receive venture capital financing. The vast majority of young companies, including young high tech companies, are bootstrap companies. The entrepreneur's or founder's savings, loans from family and friends and even second mortgages, finance the early years of most companies. Only after there is a product, a business plan, a real company, does venture capital become a viable financing source.

Venture capital is therefore, just one piece of the finance puzzle. It is appropriate for some companies. However, for the vast majority of high tech firms, venture capital will not play a role in their development. That is just one reason other financial institutions, most notably commercial banks, must become involved in high tech. Banks are the lifeblood of these companies. Without their lending, most companies could not survive. Yet, as important as this role is, there seems to be a reluctance on the part of many banks to make a full commitment.

In the next Business Review Article entitled "Does Utah Have a Capital Gap?" the issues surrounding venture capital are brought closer to home. Utah's venture industry is examined within the context of national trends and patterns.

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Utah Business Statistics

UTAH DATA	Feb 1987	Feb 1988	% Change From Year Ago	12 Month Average This Year	12 Month Average Last Year	12 Month Average % Change
Total Personal Income (seasonally adjusted) (mil. of dol.) (qtly.)	18,489	NA	NA	NA	18,340	NA
New Corporations (no.)	425	516	28.0%	470	452	3.9%
New Car, Truck and Motorhome Sales (no.)	4,486	NA	NA	NA	6,062	-19.1%
Agriculture						
Average Prices Recorded by Farmers (dol.)						
Beef Steers and Heifers (cwt) (thous.)	60.90	66.90	11.8%	64.59	55.83	15.7%
Lambs (cwt)	70.30	77.80	12.0%	73.68	67.39	9.3%
Milk Wholesale (cwt)	12.20	11.80	-4.7%	11.86	11.92	-0.5%
Alfalfa Hay, Baled (per ton)	67.00	74.00	12.1%	68.58	66.73	2.8%
Cattle Slaughtered (live weight) (thous. of lbs.)	36,034	45,368	10.2%	42,953	37,990	13.1%
Construction						
Total Construction (thous. of dol.) [1]	101,571	116,379	64.4%	124,137	127,412	-2.6%
Residential	38,741	36,231	14.0%	52,137	59,611	-12.5%
Nonresidential	43,835	41,814	112.6%	40,202	48,606	-17.3%
Public Works and Utilities	18,995	38,334	208.1%	31,799	19,445	63.5%
Total Permit Construction (thous. of dol.) [2]	70,826.5	55,590.0	-35.9%	86,574.4	109,736.1	-21.1%
Residential	32,639.9	27,284.0	-37.7%	40,055.8	57,807.4	-30.7%
Nonresidential	23,912.7	16,996.5	-46.2%	32,881.1	37,850.1	-13.1%
Additions, Alterations and Repairs	14,273.9	11,309.5	2.2%	13,638.3	14,099.1	-3.3%
New Dwelling Units (no.)	540	406	-40.5%	586	1,040	-43.7%
Employment						
Civilian Labor Force (thous.)	749.6	757.7	1.4%	757.7	752.1	0.7%
Total Employed Persons	693.2	709.7	2.2%	710.6	707.6	0.4%
Unemployed Persons	56.3	48.0	-7.9%	47.0	44.3	6.2%
Percent Total Labor Force	7.5	6.3	-8.2%	6.2	5.9	5.9%
Employees on Nonagricultural Payrolls (thous. of jobs)	627.6	637.1	1.7%	642.3	635.4	1.1%
Manufacturing	88.8	93.5	5.2%	93.5	91.4	2.4%
Mining	7.6	8.1	6.5%	8.1	7.8	4.4%
Contract Construction	24.0	20.1	-16.8%	26.6	31.8	-16.4%
Transportaion, Communication and Utilities	37.1	37.9	2.7%	37.9	37.3	1.5%
Wholesale Trade	34.6	34.1	-1.4%	35.7	35.8	-0.2%
Retail Trade	115.0	114.2	-0.8%	118.6	117.3	1.2%
Finance, Insurance and Real Estate	33.6	33.5	0.6%	33.8	33.1	2.1%
Services [3]	142.8	152.1	6.8%	146.5	139.3	5.2%
Federal Government [4]	40.5	39..	-1.3%	39.7	40.5	-2.0%
State Government [4]	39.3	38.8	-0.5%	37.4	38.0	-1.7%
Local Government [4]	64.6	65.4	0.8%	64.4	68.2	2.0%
Average Weekly Hours						
Manufacturing	38.7	40.0	6.1%	40.1	39.8	0.8%
Mining	43.2	42.8	9.5%	41.6	42.3	-1.6%
Wholesale Trade	38.0	38.7	2.1%	38.8	37.2	4.2%
Retail Trade	27.0	27.6	0.7%	28.4	28.0	1.6%
Amount of Unemployment Compensation (thous. of dol.)	11,871.3	8,993.4	-30.6%	7,253.1	8,560.8	-15.3%
Finance						
Savings, Savings and Loan Association (mil. of dol.)	2,443.2	2,088.9	-6.7%	2,411.2	2,387.4	1.0%
Tax Collections by the State of Utah (thous. of dol.)						
Total Tax Collections	262,327.8	275,699.4	36.0%	143,385.2	124,509.7	15.2%
Sales and Use Tax	131,142.0	137,158.9	72.6%	48,776.7	46,022.3	6.0%
Motor Fuel Tax	5,042.5	9,983.1	-4.2%	9,834.5	7,996.7	23.0%
Individual Income Tax	78,084.2	74,745.1	37.8%	50,046.8	40,093.1	24.8%
Corporation Franchise Tax	(835.2)	1,175.8	-1326.2%	7,250.2	4,281.5	69.3%
Production						
Net Electric Power Utilized (mil. of kwh)	1,065.5	1,114.7	2.3%	1,157.6	1,102.2	5.0%
Crude Oil to Refineries (thous. of bbls.)	3,425.8	3,484.7	-5.3%	3,785.6	3,863.9	-2.0%
Crude Oil (thous. of bbls.)	2,822.3	2,745.0	-8.5%	2,921.8	3,177.6	-8.0%
Natural Gas (mil. of cu. ft.)	20,210.8	23,643.5	10.4%	22,114.6	19,762.4	11.9%
Coal (thous. short tons)	841.0	1,609.0	93.0%	1,388.2	912.1	52.2%
Tourism/Travel						
Air Passengers (total no. on and off) (S.L. Int'l Airport)	786,132	802,631	2.0%	849,691	837,876	1.4%
Highway Traffic Count Across State Lines	28,772	NA	NA	NA	37,599	NA
Transient Room Taxes (thous. of dol.)	1,403.6	(175.6)	1075.2%	362.9	463.0	-21.6%
Visits, State, Nat'l. Parks, Monuments (thous.)	288.2	345.4	1.1%	1,066.0	1,015.6	5.0%
Utilities						
Telephone Lines in Service (Mt. Bell) (Residential)	478,468	486,615	1.9%	481,313	473,476	1.7%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	173,381	178,484	2.9%	176,696	169,664	4.1%
Electric Customers (Residential)	472,502	477,257	1.4%	474,058	463,904	2.2%
Electric Customers (Commercial)	46,333	46,468	1.5%	46,343	45,444	2.0%
Natural Gas Customers (Residential & Commercial)	450,726	462,050	2.8%	448,734	437,463	2.6%
Natural Gas Customers (Industrial)	554	543	-1.1%	552	566	-2.4%

Utah Business Statistics

UTAH DATA	Feb 1987	Feb 1988	% Change From Year Ago	12 Month Average This Year	12 Month Average Last Year	12 Month Average % Change
Davis County						
Non-Ag. Employment (thous.)	51.2r	50.6fo	-1.6%	52.9	53.5	1.2%
Unemployment Rate	6.9r	5.3	-5.3%	5.3	4.7	12.3%
Auth. Permit Construction (thous. of dol.)	7,697.7	7,029.2	-14.4%	12,453.7	14,586.7	-14.6%
New Dwelling Units (no.)	75	55	-44.2%	87	186	-53.2%
Postal Receipts (thous. of dol.)	425.7	401.7	-8.9%	385.8	NA	NA
Electric Customers (Residential)	47,204	48,142	3.5%	47,530	45,557	4.3%
Electric Customers (Commercial)	3,249	3,362	4.8%	3,309	3,263	1.4%
Natural Gas Customers (Residential)	49,126	50,372	3.6%	49,087	46,832	4.8%
Natural Gas Customers (Industrial)	52	53	0.0%	52	51	1.8%
Telephone Lines in Service (Mt. Bell)(Residential)	54,473	54,849	0.7%	54,860	53,374	2.8%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	10,266	10,990	7.1%	10,680	10,168	5.0%
Salt Lake County						
Non-Ag. Employment (thous.)	327.1r	332.6fo	1.2%	335.6	330.7	1.5%
Unemployment Rate	6.2r	5.7	-4.8%	5.5	5.3	2.7%
Auth. Permit Construction (thous. of dol.)	30,670.5	21,767.3	-54.4%	39,221.7	58,434.0	-32.9%
New Dwelling Units (no.)	233	140	-48.3%	219	489	-55.3%
Postal Receipts (thous. of dol.)	7,683.5	7,525.4	-8.0%	7,350.0	7,069.8	4.0%
Electric Customers (Residential)	237,301	240,036	1.3%	236,948	232,426	1.9%
Electric Customers (Commercial)	20,008	20,234	3.1%	20,026	19,425	3.1%
Natural Gas Customers (Residential)	220,408	223,119	1.5%	217,761	213,531	2.0%
Natural Gas Customers (Industrial)	244	231	-4.1%	238	254	-6.3%
Telephone Lines in Service (Mt. Bell)(Residential)	225,831	229,184	1.7%	227,453	223,373	1.8%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	108,696	110,053	1.2%	110,018	108,716	1.7%
Utah County						
Non-Ag. Employment (thous.)	72.5r	74.7fo	1.8%	73.3	72.4	1.3%
Unemployment Rate	9.0r	6.1	-30.0%	6.5	6.7	-2.6%
Auth. Permit Construction (thous. of dol.)	11,736.9	12,070.6	-26.3%	12,492.0	9,367.0	33.4%
New Dwelling Units (no.)	56	88	-50.0%	93	102	-8.7%
Postal Receipts (thous. of dol.)	993.8	1,082.8	1.0%	942.7	922.6	2.2%
Electric Customers (Residential)	50,195	51,740	2.7%	52,291	49,935	4.7%
Electric Customers (Commercial)	6,365	5,907	-6.1%	6,707	6,191	0.3%
Natural Gas Customers (Residential)	60,741	62,176	2.2%	60,500	59,774	1.2%
Natural Gas Customers (Industrial)	67	70	3.0%	69	71	3.5%
Telephone Lines in Service (Mt. Bell)(Residential)	62,307	64,672	3.7%	62,751	62,258	0.8%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	18,448	19,766	7.3%	19,021	16,343	16.4%
Weber County						
Non-Ag. Employment (thous.)	60.0r	60.7fo	0.5%	60.8	60.1	1.2%
Unemployment Rate	7.4r	6.9	2.6%	7.0	6.4	9.4%
Auth. Permit Construction (thous. of dol.)	10,434.3	4,649.3	-59.3%	7,776.3	9,915.7	-21.6%
New Dwelling Units (no.)	63	42	-79.4%	65	83	-22.4%
Postal Receipts (thous. of dol.)	544.4	684.0	-5.7%	620.4	620.1	0.1%
Electric Customers (Residential)	52,686	53,547	1.7%	52,976	52,025	1.8%
Electric Customers (Commercial)	4,808	4,896	1.9%	4,867	4,759	2.3%
Natural Gas Customers (Residential)	49,821	50,230	1.5%	49,104	48,244	1.8%
Natural Gas Customers (Industrial)	83	83	-2.3%	85	86	-1.5%
Telephone Lines in Service (Mt. Bell)(Residential)	45,837	46,112	0.8%	46,017	45,471	1.2%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	10,725	11,341	6.6%	11,144	10,564	5.5%

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Sources:

Personal Income:	Bureau of Economic Analysis, U.S. Department of Commerce
New Corporations:	Utah Secretary of State
New Car and Truck Sales:	Utah State Tax Commission, Economic and Statistical Unit
Agriculture:	U.S. Department of Agriculture, Agriculture, Utah: Utah Crop and Livestock Reporting Service
Construction Data:	F.W. Dodge Statistics and Utah Construction Report, Bureau of Economic and Business Research
Employment Data:	Utah Department of Employment Security
Savings Information:	Utah Savings and Loan Institutions
Tax Collections:	Utah State Tax Commission
Net Electric Power Utilized:	Cooperating Utah power companies
Crude Oil Production:	Area oil refineries
Natural Gas Production:	Utah Department of Oil, Gas, and Mining
Coal Production:	U.S. Department of Energy
Air Passengers:	Salt Lake City International Airport, Statistics Division
Highway Traffic Count:	Utah Department of Transportation
Visits to State and National Parks and Monuments:	U. S. Forest Service, Utah State Parks and Recreation Department
Utilities Data:	Cooperating Utah utility companies
Postal Receipts:	Postmasters in Davis, Salt Lake, Utah, and Weber Counties

Footnotes:

1 Obtained from F.W. Dodge Statistics
2 Obtained from Utah Construction Report
3 Includes services by nonprofit and religious institutions
4 Includes public schools and college institutions

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NATIONAL DATA	Feb 1987	Feb 1988	% Change From Year Ago	12 Month Average This Year	12 Month Average Last Year	12 Month Average % Change
U.S. Gross National Product (seasonally adjusted) (bil.) (qtly.)	4,377.7	4,660.9	6.5%	4,535.5	4,255.2	6.6%
Total Personal Income (seasonally adjusted) (bil. of dol.)	3,671.2	3,894.7	6.6%	3,785.2	3,567.2	6.1%
Industrial Production Indexes (seasonally adjusted) (1977=100)	127.1	134.4	6.5%	131.1	125.2	4.7%
Total Non-Farm Bus. Expend. on New Plants & Equip. (bil.) (qtly.)	374.2	422.7	13.0%	398.6	378.5	5.3%
Index of Leading Indicators (1967=100)	185.9	191.7	2.0%	190.6	181.1	5.2%
Price Indexes						
Consumer Price Indexes (not seasonally adjusted) (1982-84=100)						
CPI-U (All Urban Consumers) All Items	111.6	116.0	4.0%	114.4	109.9	4.0%
CPI-U (All Urban Consumers) Food & Beverages	112.5	115.8	3.2%	114.1	109.8	3.9%
CPI-U (All Urban Consumers) Housing	112.4	116.6	3.8%	114.9	111.3	3.2%
CPI-U (All Urban Consumers) Transportation	103.1	106.8	4.4%	106.1	101.6	4.4%
CPI-U (All Urban Consumers) Medical Care	127.3	135.5	6.0%	131.5	123.6	6.4%
CPI-U (All Urban Consumers) Energy	85.6	87.0	4.2%	89.0	85.8	3.7%
Producer Price Index (not seasonally adjusted) (1982=100)						
Producer Price Index, All Finished Goods	104.1	105.9	2.1%	105.7	103.1	2.5%
GNP Price Deflator (1982=100) (qtly.)	116.1	119.4	2.6%	118.0	114.6	3.0%
Civilian Employment (seasonally adjusted)						
Total Civilian Labor Force (mil.)	119.3	121.3	1.8%	120.1	118.2	1.6%
Total Civilian Employment (mil.)	111.3	114.4	2.8%	112.9	110.0	2.7%
Unemployment Rate	6.7	5.7	-13.4%	6.0	6.9	-13.1%
Construction						
Total Construction (mil. of dol.)	15,729.4	16,247.2	-13.0%	20,849.7	19,467.8	7.1%
Residential	7,920.2	7,845.6	-16.1%	9,728.6	9,737.4	-0.1%
Nonresidential	5,394.5	5,386.1	-14.0%	7,209.5	6,420.7	12.3%
Non-Building	2,414.7	3,015.5	-1.5%	3,884.9	3,309.7	17.4%
New Dwelling Units (no.)	112,120	98,918	-29.5%	125,805	140,359	-10.4%
Interest Rates						
Short Term (3-month Treasury bill rate)	5.59	8.82	8.3%	6.13	5.72	7.2%
Long Term (30-year Treasury bond yields)	7.69	8.41	-25.1%	8.54	7.87	8.4%
Prime Rates Charged by Banks on Short-term Business Loans (ave.)	7.50	8.51	16.7%	8.39	8.00	4.9%
Mortgage Rates (new homes)	8.87	8.80	-4.3%	8.90	9.61	-7.3%

Sources: Business Conditions Digest, U.S. Department of Commerce: U.S. Gross National Product, Total National Personal Income, Industrial Production Indexes, Total Business Expenditures for New Plant and Equipment, Index of Leading Indicators, GNP Price Deflator, National Employment Data, Interest Rates.

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Chase N. Peterson, *President, University of Utah*
John Seybolt, *Dean, Graduate School of Business*

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